

# DISTRIBUTED LEDGER TECHNOLOGY IN BANKING AND CROSS BORDER TRANSACTIONS

Is DLT overstating its promise as an efficient, innovative  
technology, or is it a disruptive hype not possible to be  
fulfilled?

Research dissertation presented in partial fulfilment of the requirements  
for the degree of  
MSc in International Business and Law

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## Candidate Declaration

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I certify that the dissertation entitled:

*DISTRIBUTED LEDGER TECHNOLOGY  
IN BANKING AND CROSS BORDER TRANSACTIONS*

*Is DLT overstating its promise as an effective, innovative technology, or is it a disruptive hype not possible to be fulfilled?*

Submitted for the degree of: MSc in International Business and Law is the result of my own work and that where reference is made to the work of others, due acknowledgement is given.

A handwritten signature in black ink, appearing to be 'Alejandra Vila Rodo', written over a horizontal line.

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Date: 26 / August / 2019

## Dedication

To God.

To that small spark of determination inside you, that allows you to realise those so apparent unachievable dreams...

## Acknowledgements

"Time is the most valuable asset that a person can dedicate to another human being..."

I want to acknowledge firstly my mother Yuly for her love and patience, my father Jorge that taught me the value of education and my sister Fabiola for her constant encouragement.

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## Abstract

### **DISTRIBUTED LEDGER TECHNOLOGY IN BANKING AND CROSS BORDER TRANSACTIONS**

Is DLT overstating its promise as an efficient, innovative technology, or is it a disruptive hype not possible to be fulfilled?

*The emergence of computer and communication technology has changed the way businesses are conducted, and it has raised the perspective of people to carry out international business transactions when dealing with cross border users. The combination of business and technology provide opportunities for businesses, companies or individuals to develop new commercial ideas and business models, where many people are getting involved in the new waves of technology, and there is a development in what transactions used to be and what they are now in this century.*

*The aim of this study is to analyse the exposure of all the changes and statements that the Distributed Ledger Technology (DLT) is stating since this new technology is promising at the same time; it may also be disruptive and could involve more work and changes than probably expected. Moreover, this study attempts to gather information, perceptions, experience how DLT is useful a technology worthy of implementation. The study used the interpretivist, phenomenological, qualitative method. It involved one on one, open-ended semi-structured interview questions that allowed for a greater understanding of the phenomenon of the study.*

*The inclusion criteria for the participants in the data collection was directed to key banking executives, lawyers, specialists in GDPR as well as information and technology professionals.*

*The findings from this study will shed light on the roles that DTL plays in removing the inefficiencies in the banking scheme and cross border transactions as well as promoting financial inclusions as a way to consolidate the data within the boundaries of various platforms. The study will contribute to the importance of the DTL and blockchains literature through suggestions of the implications of what DTL offers and its relevance to the cross-border transactions.*

*Alejandra Julieta Vila Rodo*

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## CHAPTER ONE

### 1. Introduction

#### Overview

Distributed ledger technology is a technological innovation, which streamlines financial transactions and reduces the costs of transactions. The financial industry assesses the opportunities as well as the challenges presented by the technology industry; it has transformed the financial institutions for new entrants.

The executives and start-ups can overcome technological issues, regulatory as well as adaptation changes using, for example, blockchain technology. Despite the fact that the potential of the distributed ledger technology, the literature on its influence is still fragmented, there is weak imperial insights as well as limited theoretical explanations. The financial industry management does not have the guidance on how to plan as well as prepare for the effects of blockchain technology or DLT over the financial transactions. (CB Insights, 2018).

Distributed ledger technology (DLT) seems to be the technology that has a significant impact on those processes which are inefficient. Nevertheless, DLT might cause disruption while performing those processes. (Natarajan, Krause and Gradstein, 2017).

The concept of Disruption happens when small companies, which are limited in resources, challenge larger companies that have already been established and invest in the larger markets. Most big companies focus on the big potential clients that enable disruptive businesses to concentrate on the overlooked client segment and thus gain presence in the industry. The large companies are not flexible to adapt quickly to the threats, therefore, allow the disruptive companies to move upwards and get more customers. (CB Insights, 2018).

- Potential disruptive technology

The companies that take risks realise potential disruptive technology and try to target new clients in the new markets. They also find ways in which they can incorporate technology into their business for innovation. However, bigger companies only take risks and adopt technology after they see it performing with a wider audience. Therefore, such companies fail to account the new effects, and they may find themselves losing market share to their competitors. (Moser, 2018)

The cross border business has become a common mode of trade for the past few years. This has led to the rise of the cross-border payments through Blockchains and Distributed Ledger Technology. Cross border payment is expensive and complex (Shergill & Chen, 2015). Therefore, this exploratory study evaluates the use of Distribution Ledge Technology (DLT), which tries to reduce the costs and improve the use of different platforms in the cross-border transactions.

The technology and infrastructure providers have ensured that there are platforms that have made online shopping, banking and e-commerce successful and profitable. They have assisted in the facilitation of the logistics, payments facilitators and fraud identification to ensure the smooth running of the businesses. They have built the infrastructure to enable cross-border payments through e-commerce. It has reduced the cost of operations, tax and regulatory costs for most of the businesses (Li, & Zhang, 2012).

Research shows that if most of the consumers choose to shop online, they can save over \$ 11 billion per year when they choose to buy goods and services across the border. The shopping is part of the new era in the technology since all these are being done electronically via internet servers and with the use of banks in a direct form (Bochaton, 2015).

However, the results from a research by Oliveira, et al., (2016) show that out of 4,130 European consumers only 10 percent shop online regularly from a cross-border due to other barriers such as issues with transactions, lack of awareness, potential benefits, consumer rights and unfair variations in the costs and misleading information. The study also identifies various problems related to delivery, language barrier, and unacceptable delays.

Electronic money transfer has also enabled business organisations to carry out business transactions with their stakeholders worldwide. It also includes buying, selling hiring, planning, as well as booking or shopping online. In the colleges, the students apply for the courses online and make payments overseas (Bochaton, 2015). The technology has enabled the growth of e-commerce, which involves digitally enabled transactions among individuals and businesses. Online businesses have been structured based on the infrastructure, products and services provided (Pham, et al., 2018).

In Block-chain technology, Distributed Ledger Technology plays a very important role in the facilitation of the cross-border payments as well as improving the financial ecosystem at a global level. The blockchain has been launched as a method to pay and transactions according to the cryptography to give alternative mechanisms for trust among the acting parties. Technology has led to the collective bookkeeping system called ledger, which is a mathematical function that allows the participating parties to reach an agreement on the transaction (Dongwei, 2016).

The information about single transactions is collected in blocks, which are reviewed and verified by the network as well as added in chronological order on the computers of every participant. A distribution ledger of the verified transactions is provided to the network. It is the most famous application of the blockchain technology, which is said to be the best solution for the wide spectrum of transactions, which are real-time payments between the two parties to make their payments across all currencies (Dahlberg & Ondrus, 2015).

Technology has rapidly become a global phenomenon, and many companies have started adopting internet transfers to reduce the cost of transactions by the traditional methods of payment. Companies have also reduced the prices of the products, as well as the cost of the transfer, making it not very expensive. The adaptation to technology has attracted many people, making business organisations very competitive in the local and international markets (Pickernell, et al., 2016).

The emergence of computer and communication technology has changed the way businesses are conducted, and it has raised the perspective of people who want to carry out international business transactions. The

combination of business and technology provide opportunities for businesses, companies or individuals to develop new business ideas and models in e-commerce (Shergill & Chen, 2015). Electronic money transfer has also enabled business organisations to carry out business transactions with their stakeholders worldwide. Their technology has enabled the growth of e-commerce, which involves digitally enabled transactions among individuals and businesses. Online business has been structured based on the infrastructure, products and services provided (Pham, et al., 2018).

Electronic businesses aim at enhancing competitiveness among the organisations as the internet deploys innovative information throughout the business organisation and beyond the boundaries. In addition, it has led to individuals and natural citizens to get involved in digital transactions like bitcoin and other services, enabling them to create profitable businesses, without the need of banks. Information technology has made it possible for electronic payments like debit cards, electronic fund transfers, direct credit transactions, credit cards and direct banking using E- payment and it made online buying easy (Finken, 2012).

The banks play a critical role in this as they act as the intermediary. The traditional payment modes such as MoneyGram and Western Union have gone down, and they had many limitations, which affected the customers. MoneyGram and Western Union were not like what E-payment is now. E-payment has now been made easier and can be adopted by many people. There was a lack of trust in the traditional methods of payment, there were insecurity issues among the customers, and the cost of the transaction was also very high and perceived risky. This has now enabled the banks to switch to e-payment, which has been widely adopted (Maniff & Marsh, 2017).

Payment through electronic transfer has smooth functioning of commerce and fostered economic growth. The markets of electronic payments services have exhibited the economies of scale as well as various types of externalities; therefore, poses challenges to the regulators. Most customers prefer electronic payments because it is safe, efficient, innovative and accessible. The e-commerce payment system facilitates the acceptance of electronic transfer for online transactions (Dongwei, 2016).

Dennehy & Sammon, (2015) noted that widespread use of the internet has facilitated the use and popularity of e-payment systems that people use in various transactions, collateral or even of billion dollars transactions. However, electronic payments are supposed to fulfil two basic things. For instance, the replacement of the old money transfer methods like (CBRs) Corresponding Banking Relationships, because of the risk issues associated with them. Secondly, the use of an easier and faster system for the transfer of the services, avoiding the old methods like Western Union. Consequently, using bank accounts without the exchange of papers. For instance, employers deposit salaries for their employees through electronic fund transfers (Dennehy & Sammon, 2015).

- Problem statement

Making transactions across the border is one of the major issues among international participants. Sending international payments through banking channels is very complex and has many steps that involve many intermediaries. Blockchain and distribution ledger technology has helped in solving these challenges by processing and storing each transaction in a distributed ledger, which states as more secure. (Natarajan, Krause and Gradstein, 2017)

After the transaction is done and recorded, the receiving party can access the payment, and there are no intermediaries involved; therefore, there are no extra charges and delays experienced. In addition, after the transaction is done, it cannot be reversed or changed; therefore, ensures total traceability and security of the payments. With increased security, lower costs and efficiency in the blockchain and distributed ledger technologies, the cross-border payments systems have been revolutionised. (Sok, 2016)

However, the advantages of having blockchain and distributed ledger technologies have not been fully utilised since several standards must be developed, such as technological, governance, and reliability standards (Dennehy & Sammon, 2015).

The landscape of the blockchain is very fragmented and has many stakeholders who have different degrees of the public and private regulations power who have taken the responsibility of establishing these standards. Distributed Ledger Technology is still a new technology, but it has influenced the way the companies, as well as consumers, process their transactions on the

international level. Even though it has become a trend for companies to get goods and services from the global markets, cross border payments have not been well established for the past many years. Since the founder of fintech, blockchain has become an interesting payment mode for crossborder transactions for consumers, it has resolved the inefficiencies, reducing the costs, and it is the fastest alternatives. (Kakavand, Kost De Sevres and Chilton, 2017)

The distributed ledger technology is an innovation that in different ways, seems to be a magical and prosper tool for refreshing the CBR's helping the public that deals with international transactions, changing the way of banking. However, it is a premature technology that also carries out many different problems, which will be discussed over the following chapters. (Balling, Hennessy and Hochreiter, 2005)

Therefore, distributed ledger technology is an innovation that in different ways, seems to be magical and prosper tool for refreshing the CBR's, as well as helping the general public that deals with international transactions, changing the way of banking. It is such a premature technology that also carries out many different problems, which will be discussed in extend over the following chapters of the study, involving an analysis of the legal differences with GDPR, acceptance and the role of banks, (Gabor, 2015).

## 1.1 Research Purpose

The study will help shade more light on the utilisation and understanding of DLT for scholars, professionals and entrepreneurs that wish to explore and understand the new way of banking and decide to invest, professionals in the different areas, that are aware of the new methods of cross border transactions such as blockchain and distributed ledger technology.

In the Blockchain technology, the distributed ledger technology plays a very important role in the facilitation of the crossborder payments as well as improving the financial ecosystem on a global level, to answer the research question stated for this study, the researcher will be directing more knowledge and focus over distributed ledger technology use and understanding.

The blockchain has been launched as a method for payments and transactions according to the cryptography to give alternative mechanisms for trust among the acting parties. Technology has led to the collective bookkeeping system called ledger, which is a mathematical function that allows the participating parties to reach an agreement on the transaction (Gabor, 2015).

The information about single transactions is collected in blocks, which are reviewed and verified by the network as well as added in chronological order on the computers of every participant, also called known as a Node. A distribution ledger of the verified transactions is provided to the network. It is the most famous application of the blockchain technology, which is said to be the best solution for the wide spectrum of transactions, which are real-time payments between the two parties to make their payments across all currencies such as the peer-to-peer individuals (Gabor, 2015).

## 1.2 Significance of the Study

The results in this study will be significant to a widespread of people such as scholars who will have a wider source of data added on the literature materials for future research. In addition, using the study limitations, they will be able to fill the gaps in the field of research on the distributed ledger technology. Moreover, the results will help the crossborder users to have a depth understanding of the way blockchains and DLT operate in cross-border transactions.

## 1.3 Research Objective

The objective of the following study is to analyse, investigate and bring together the perceptions of different key players in the utilisation of DLT such as banks representatives, advocates and informatics developers in use and applicability of DLT. In addition, evaluate further possible application of DLT as an important tool for the improvement of CBR's in regards of economic inclusion,

and as an enhancement in the international cross border transaction, taking knowledge of the challenges that DLT faces.

In addition, the veracity in the utilisation of DLT as an inexpensive, faster and efficient innovation for the worldwide e-commerce and e-transactions. (Erbenova *et al.*, 2016) Part of this paper is to investigate the challenge with the GDPR over “the right to be forgotten art.17, as it may be an important barrier in DLT implementation; finally, the proper critical analysis and evaluation of the advantages and disadvantages of Distribution Ledger Technology and blockchain will be addressed in the overall of this study.

### Research question

The following research questions will be utilised in order to fill in the gap that is not answered clearly in the literature.

*Is DLT overstating its promise as an efficient, innovative technology, or is it a disruptive hype not possible to be fulfilled?*

## 1.4 Structure of the Study

The structure of the study will be developed. Firstly, over an introduction to the topic regarding DLT and blockchain, by introducing a detailed background of what DLT implies in the world of e-commerce, banking among others, as well as the importance of DLT as innovative technology. In what manner the structure of the proposal will be presented in five consecutive chapters, displayed with the following headings:

### Chapter one

Chapter one will give a general introduction to the contextual background, the research topic, the gap found in literature, objectives, and aims, as well as the significance of the study, the research questions and the limitations of the study.

### Chapter two

Chapter two stands the literature review, which introduces the reviews of literature related to the generic backgrounds, explaining the general theories



and concepts. It also highlights the factors influencing the societal and individual perception towards the various disciplines in numerous fields of research. The chapter also gives the theoretical and conceptual frameworks that seek to underlying variables based on the literature in regards to DLT and its implementation.

### Chapter three

Chapter three stands the methodology of the study. The research focuses on the investigations of the underlying factors that influence the outcome for implementation of the distributed ledger technology. The focus discussions and the interviews will be used as a method of data collection. Data analysis and approach will be discussed in details, an extensive analysis in the methodology as a qualitative method using narrative to develop the interviews.

The researcher used phenomenological interpretivism study through qualitative description and data analysis. The gathering of the data over one on one interviews and open-end questions. The reason for using interpretivism is because the meanings already exist in the world, and therefore, we acknowledge their existence, its construct, and to try to avoid distorting them using different theories. The researcher uses the existing literature of scholars, as well as its own gathered data, obtain from interviews to discover the veracity in the experienced expressed from the participants (Schwartz –shea,2011)

### Chapter four

Chapter four discloses the findings, data analysis and presentation of the research findings, which will be analysed in detail from the qualitative results to understand the in-depth of the influence of the distributed ledger technology. The type of analysis process will be done through the structuring of what the interviews meant, using narrative to try to determine the key conflicts, main characters, setting and events. The main Scheme is about how, and at what is happening with DLT, the key conflicts are set up, and a conclusion is given with the proper recommendations.

The following steps will be followed. Firstly, by compiling the interviews and transcriptions. Secondly, the researcher will analyse the explicit content, the discourse, and the context of each interview, focusing on the insights and understandings. Thirdly, it will consider the latent content that lies unsaid between

the lines. The fourth step will be to follow the procedure that will compare and contrast interviews for similarities and differences in content, style, and interpretation as well as experience. The researcher will put the following into consideration, the effects of background variables such as geography, gender, age, professional background, educational background, experience, and work position.

Finally, the researcher will identify the content that illustrates the research question, insights, and understandings by enlightening Lewis force field analysis.(Lewin, 1951) Which Explains the equilibrium by identifying the interviewer's position in regards to DLT. The data analysis will be structure through one on one, open-end interviews. The respondents will have space to express their experience and advice in regards to distributed ledger technology. Its implementation, among others.

The interviews will be done through the utilisation of the inclusion criteria, for the key banking executives, Information Technology professionals, advocates and GDPR experts. Initially, the chapter will give a detailed discussion on the data analysis procedures and identify the findings of the qualitative study to answer the research question.

## Chapter five

Chapter five stands for the conclusions of the study, giving a precise summary, recommendations as well as a final conclusion. In addition, the chapter will describe the limitations of the study design and give recommendations for future studies based on the findings. The researcher will offer a critical summary of the recommendations, findings in regards to answering the research questions as well as the aims of the study.

## CHAPTER TWO

### 2. Literature Review

In the previous chapter, a detailed introduction of DLT, inclusive of the benefits and barriers was discussed. The researcher also highlighted the probable adversities that DLT as a “new” technology might generate in the cross border and financial world.

In the following chapter, the literature surrounding the phenomenon of DLT will be reviewed. An extensive literature review surrounding the topic bellow will be discussed:

- Section 1: Distributed Ledger Technology – DLT
- Section 2: Blockchain Technology
- Section 3: Distributed Ledger Technology and Blockchain
- Section 4: The Driving and Restraining Forces of Distributed Ledger Technology

The conceptual framework used to guide the literature review for this study was based on the theoretical frame of Lewins (1951).

### Overview

Technology has rapidly become a global phenomenon, and many companies, investors, and civilians have started adopting internet transfers to reduce the cost of transactions by the traditional methods of cash flow. Technology has attracted many people making business organisations very competitive in the local and international markets (Pickernell, et al., 2016).

The emerging need for computerised and communication technology has changed the way businesses are conducted, and it has raised the perspective of people to carry out international business transactions. The combination of business and technology provide opportunities for business, companies or individuals to develop new business ideas and models in e-commerce (Shergill & Chen, 2015).

Electronic money transfer has also enabled businesses and organisations to conduct business transactions with their stakeholders worldwide. It further facilitates the purchasing, selling, hiring, planning, as well as online shopping. Technology has enabled the growth of e-commerce, which involves digitally enabled transactions among individuals and businesses. Online businesses have been structured based on the infrastructure, products and services provided (Pham, et al., 2018).

E-commerce is built on e-payment systems, and it is a major component of the business operations that many organisations use (Guo & Bouwman, 2016). E-payment is currently an essential issue for the success of the business as well as financial services. When e-payment is compared to the traditional payment methods, it has several advantages such as reliability, anonymity, privacy, efficiency, scalability, security and convenience (McDermott & Payvision, 2015).

E-payment has gained recognition and has been adapted throughout the world. Nations inclusive of France, The United Kingdom, and the United States have also developed these systems to enable e-payment whereas other countries, for example, the Asian Pacific have further led to the impetus growth of the industry surrounding e-payment systems (Li, N., & Zhang, 2012).

The cross-border transactions in E-commerce involve lack of "face to face interaction", and this lack of an interpersonal relationship can cause concerns for services users. Other concerns expressed surrounding the use of e-commerce transactions include security threats from the internet, social media, and interpersonal networks. (Bochaton, 2015).

It is asserted that this may undermine the trust of the use of e-commerce technology. E-commerce Security systems have a highly systematic set of procedures that endeavour to alleviate security concerns for service users. These security systems include specialised computer programs, as well as mechanisms that are authenticated to ensure privacy of service users personal information (Bochaton, 2015).

Despite the fact that several researchers have highlighted the matters of technical issues, which have detailed security and trust in the difficulty surrounding e-commerce payment services (EPS) from the merchant's

perspective, cross border users still feel that some security issues have not been fully addressed (Mainelli and Milne, 2016).

While several security e-payment protective systems have recently been established, the literature evidence reviewed suggests that security issues remain a significant threat in e-commerce payment services (EPS) (Dennehy & Sammon, 2015).

Alhusban, (2014) asserts that there is a growing need to reduce the risks associated with e-payment when customers make cross border payments. The majority of services users are anonymous, having not made a physical interaction, and most do not know the technical details involved in the procedure of e-commerce payment (EPS). Therefore, to attract more e-payment customers, the literature suggests that e-payment providers enhance security measures, thereby increasing service users trust surrounding e-payment transactions.

Dennehy & Sammon (2015) provided evidence of the cost incentives that consumers received when they choose cross-border payments, for instance, in Australia where the payment systems are available and are similar to the developed nations, it was evident from the transaction-level data, how the consumers made payment of the goods and services.

The study involved the substitution of credit cards, cash and debit cards for e-payments inclusive of blockchain (Bertaut, et al., 2009). The loyalty programs introduced encouraged the increased uptake use of credit cards by 24% and reduced the use of cash by 15%. Evidence suggests that when there is no financial cost, consumers increasingly decide to use credit cards or debit cards. The low-interest-rate fee encourages decreased cash usage (Barkhordari et al., 2017).

In addition, Vlcek, (2008) identified some of the advantages of e-payment systems over the traditional methods of money transfer. These included convenience, privacy, compatibility, efficiency, time-saving and low risk. Findings from the study further highlighted that e-payment methods facilitated accessibility to remote places and further minimised transportation cost.

E-commerce uses secure electronic transactions and secure socket measures, which has assisted in allaying security concerns for the clients, thereby improving service users in the service provided. Many clients perceive e-payment as being flexible and efficient, unlike the long queues at the ATM and over the counter transactions. Moreover, it has the added desirable characteristics of payment, which consist of anonymity, divisibility, shortened transaction time, transferability, and acceptability (Li & Zhang, 2012).

Bertaut, et al., (2009), examined the impacts of the financial crisis that initiated in 2007 in the United States. Findings from this research study highlighted that following this crisis, increased interest in the banking sector. In view of this, cross-border payments have also received worldwide attention. There is increased interest in foreign investments and crossborder payments transactions throughout the world.

In addition, Bertaut, et al., (2009), focused on the cross-border flows of securities in foreign purchases and the cross-border banks to evaluate the effects of the crisis on the net inflows. This study also analyses the influences that the crisis had on the cross-border securities surrounding banking and non-banking enterprises.

The Blockchain technology and the distributed ledger technology plays a very important role in the facilitation of the crossborder payments as well as its improvements in the financial ecosystem at a global level. The blockchain was launched as a method of payment for transactions. The increased cryptography measures, introduced with the blockchain method, encouraged trust for service users. Increased Technological advances have led to the advancement of the collective bookkeeping system entitled ledger, and this is a mathematical function that allows the participating parties to reach an agreement over the transaction (Gabor, 2015).

The information about single transactions is collected in blocks, which are reviewed and verified by the network as well as added in chronological order on the computers of every participant. A distribution ledger of the verified transactions is provided to the network. It is the latest cryptological advancement in blockchain technology. It is lauded to be the newest advisable solution for the conduction of cross border transactions, which involves real-time

payments between parties who make payments across several currencies (Alhusban, 2014).

Vlcek, (2008) asserts that the expansion of electronic transfer services is pivotal to the growth of the economy in several countries inclusive of Africa, Asia, Pacific as well as Latin America. Electronic transfers assist in preventing criminal capital activities and funds that support terrorism. The electronic transfers services assist in exposing terrorist financing from the migrant's remittances (Miao & Jayakar, 2016)

The bodies and the processes that send money are now subjected to tough scrutiny because the criminals transfer and launder illegal gains and have used the formal systems that are as well utilised by honest migrants (Giuffrida, et al., 2017).

Advances in electronic transfers have assisted in increased monetary surveillance on migrant's remittance and criminal activity. (Giuffrida, et al., 2017).

## 2.1 [Section 1: Distributed Ledger Technology – DLT](#)

Distributed Ledger Technology, is an enhanced and modified database. For the purpose of this study, the participants in this database are identified as nodes. DLT has a unique storage mechanism, which is programmed to manage itself independently. Every node in the network updates the information independently. There are no arbitrators in DLT. The node needs to vote for upgrading's in the ledger, and in order to complete the upgrading process a consensus needs to be achieved, this information is later automatically updated by an algorithm (Alhusban, 2014).

DLT reduces the cost and increases trust among the users. The structure of DLT helps mitigating independence on governments, lawyers, regulatory compliance, and banks notaries. DLT has a new paradigm for collecting information and communicating with each node. The new paradigm of DLT is modified to revolutionize the way people, businesses governments carry out their transactions (Vlcek, 2008).

The distributed ledger technology enables the user to store and access records. It can be operated without the central validation or arbitration system. Distributed ledger technology is different from the normal ledgers as it is not centralised (Pham, et al., 2018).

In addition, DLT utilises cryptography, which is a secure method of storing and validating transactions. DLT has different applications; The main application is the financial service arena, which facilitates the users to access the shared database, without having intermediaries. (Pham, et al., 2018).

The information used within the ledger will be supplied to the users, and all the transactions conducted through DLT's are clear and systematically organised. The development of DLT's has assisted in avoiding intermediary involvement of banks as well as assisting in a decentralised strategy (Pham, et al., 2018).

## 2.2 Section 2: Blockchain Technology

Blockchain is a digital platform which stores data and is capable of highlighting the digital history of the transactions, that take place among users globally. Blockchains are forms of ledger technology but not DLT that utilises a blockchain of the blocks referred to as an encrypted database, which works as an irreversible and incorruptible source of information. From the technical point of view, blockchain is a database which has bundles of transactions that have been chronologically arranged in blocks (Alhusban, 2014).

The transactions can be checked from those blocks because once the information is entered, it cannot be changed or deleted. Blockchain has been referred to as a database that is connected to a distributed network, which, when secured has internal integrity. Blockchain is based on the defined mathematical rules, which have been enforced mechanically. It is noted that the blockchain does not contain a single universally agreed upon definition since many authors have outlined various different definitions (Alhusban, 2014).



## 2.3 Section 3: Distributed Ledger Technology and blockchain

With regard to DLT, there is no single authority command, and every node that proceeds to the storage works independently (Natarajan et al., 2017). The significant difference between DLT in comparison to blockchain is that it has a distributed protected encryption, that shares the information in the nodes without a validator compared to the blockchain (Li & Zhang, 2012).

These blocks are added continuously to the chains to allow the data to be added to the database. After the information is being recorded, the data is not modified or deleted. In addition, the chain blocks are enclosed by the cryptographic signature referred to as hash. (Li & Zhang, 2012).

In addition, Li & Zhang, (2012) discussed the importance of the regulatory challenges inclusive of who is in control of regulating the operation, which is decentralised. In addition, the researchers from the aforementioned study concluded that DLT has more transformation potential for different business sectors. Li & Zhang, (2012) also assert that the centralisation is beneficial in many ways. The centralised intermediary functions cannot be replaced.

Gabor, (2015) conducted a PEST analysis to ascertain the challenges associated with DLT. Environmental factors included geographical influencing factors for the socialization of the technology, Technological advantages included protection against fraud and durability, whereas the technical challenges included time constraints and integrational difficulties. Findings from the analysis revealed that environmental and technological factors have led to improved priorities of the products innovation. The goods and services have now been redesigned based on the environmental demands, standards and expectations.

Gabor, (2015) suggested that transparency for transactions is upmost importance concerning DTL. Social factors are associated with privacy and security.

The blockchain is now used as the continuous growing list applications, and the European law's as of privacy have become more sophisticated and complex according to the liberal legislative framework as well as traditions which

prioritises the unlimited human rights. In addition, it emphasises the right to defend the user's dignity and honour. The lawmakers play a catch-up role with technological developments and endeavour to protect the individual from privacy invasion as advocated by GDPR. The motivational factors to assist in facilitating this are transparency, permanency, and sustainability, since the data stored, is hard to modify or delete. The EU laws afford individuals the right not to have their personal data mis utilised (Pham, et al., 2018).

#### 2.4 Section 4: The driving and restraining Forces of Distributed ledger Technology

The blockchains are hard to protect in regards to personal data distribution because they are decentralised. It is therefore difficult to ascertain who may have accessed the individual's private data. Conversely, an advantage to this that the networks are public and transparent. All the information is accessible to everyone (Li & Zhang, 2012).

Of particular interest to note, is that the issues experienced by the Blockchain/DLT system have some advantages. The networks in the blockchain are decentralised and distributed; this allows the storage of data with different trusted parties. Therefore it is considered a valuable mechanism in ensuring the protection of data. This is not a hundred per cent reliable and, in the event, that personal data is leaked, it can lead to repercussions regarding cybercrime (Gomber *et al.*, 2018).

Despite this, the blockchains are considered safe in comparison to other technologies due to its utilisation of cryptography such as time-stamping, digital signatures (Li & Zhang, 2012).

The use of information and communication technology has a significant relationship with profitability. For instance, the cost-effectiveness in the delivery of the goods and services implies that there is a high consumer satisfaction resulting from changing in revenue model for the banks (Vlcek, 2008).

When the banks adopted the internet mode of banking, they increased consumer awareness, attracting new entries for the global major's market. In

addition, integration of the banking services with E-commerce as well as the establishment of e-cash has positively affected the efficiency scores of the banks. (Vlcek, 2008). However, according to Huang et al., (2016), internet banking has some risks, inclusive of criminal international technology activity, transfer risks, avoidance risks, fraud and tax avoidance risks.

This implies that the payment systems should include firewall security to assist and decreased the aforementioned risks. Menaces such as hacking have been associated with online banking which is perceived by the clients to be unsafe. The adequate mechanism should be established to deal with security and reduce operational risks (Bochaton, 2015).

The utilisation of a good e-payment has several advantages over the traditional methods of payment, but they may be faced with security issues. For the e-payment transaction to be effective, it must be free from security breaches. Oliveira, et al., (2016) reported that 90% of the customers are concerned about their privacy and security, especially when using credit cards through the internet.

Significant research findings from a study conducted by Dahlberg, et al., (2015), reported that six in ten people expressed fear while using their credit cards on the internet due to the risk of theft. They outlined that the main confounding factor for the successful usage of e-commerce payment services (EPS) was an improvement of security measures, and this has become a critical priority in modern global e-commerce. (Bochaton, 2015).

## 2.5 Conceptual Framework

This study is concerned with uncovering a greater understanding of the perceptions and factors that lead to the acceptability of cross border payments through the e-commerce payments systems. In order to achieve the aims and objectives of this study, it was deemed necessary to ascertain the facilitators and barriers to the utilisation of DLT. The conceptual framework which guided this study was an adaptation of Lewin's forces, (1951). A thorough review of the literature assisted in uncovering the necessary themes that assisted in adapting the conceptual framework to meet the aims and objectives of this study.

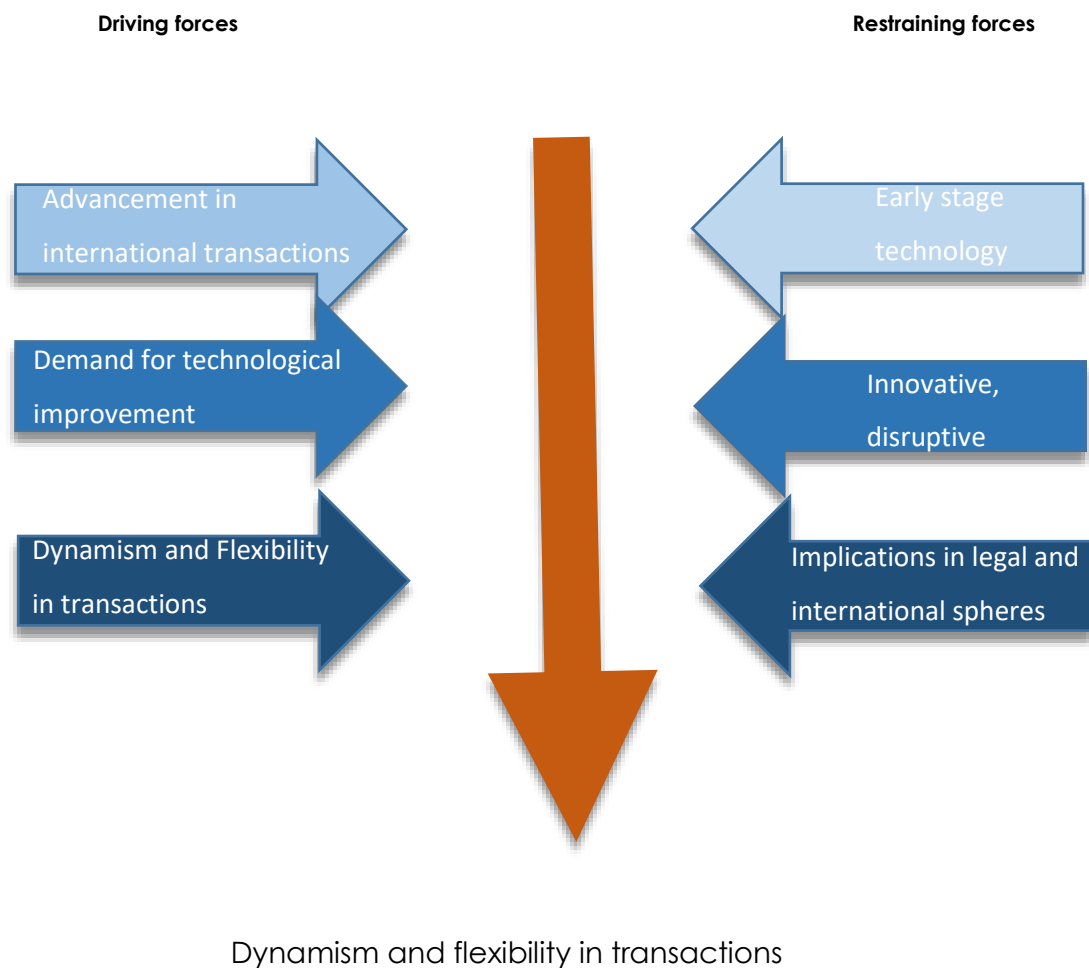


FIGURE 1: CONCEPTUAL FRAME WORK, BY ALEJANDRA VILA 2019

## Conclusion

The concept defined by Lewin, (1951) as the force field analysis fulfils the conceptualisation in the guidance of how DLT is dealing with its implementation within the Crossborder and financial schemes.

The driving forces (figure:1) include, the need of improvement in international transactions, new technology improvements, more flexible transactions, represents the need for the DLT implementation (Ritchie and Lewis, 2003).

The restraining forces are represented in the conceptual framework (figure:1). These include the lack of standardisation and the development of a brand-new innovation as a risk factor. This may present challenges in the legal

and international commercial and financial spheres regarding the implementation of DLT.

## CHAPTER THREE

### 3. Methodology and Research Design

This chapter outlines the research design, which was used in order to ascertain if DLT is an efficient, innovative technology or a disruptive hype not possible to be fulfilled. After a considerable amount of deliberation. The most suitable methodology used by the researcher was a phenomenological, qualitative research approach (Bold, 2019) with data collection obtained by one on one semi-structured interviews (Bell, E., 2011). Details of the methodology used in this chapter will be discussed under the following headings:

- Research philosophy and approach
- Research design
- Data collection techniques and procedures
- Data analysis and interpretation of data

#### Overview

A qualitative approach will be used to uncover the particular phenomenon under study. There are four principle philosophical positions, inclusive of realism, positivism, pragmatism, and interpretivism, that governs the facets of the methods used in research studies (Guest et al., 2012).

Schwartz –shea, (2011) explained that pragmatism shapes the epistemological position of the study. The study questions may need adoption on various research methods, and epistemologies and interpretivism or positivism may not be enough to respond to the study question.

Through the adoption of the existing strategies, methods as well as techniques and resources. In the aforementioned endeavour, and the use of interpretive assessment gives the researcher the chance to increase the understanding of the complicated issues of the methodology. It works under the assumptions that reality and social constructs like: shared beliefs, language and

meanings are needed to develop an efficient methodology. (Schwartz –shea, 2011).

Integrity is advocated by the research philosophy of the qualitative methodology; there is no unbiased observation, and the main thing to consider is to have validity under a positivist approach. (Creswell, 2013). The mention theoretical analysis is done in the already existing methodologies as well as managed environments, which are necessary to assess the research question from the empirical point of view. (Given, 2008)

In addition, adopting the existing theory to hypothesise over the qualitative research method, which is referred to as deductive. And The fact that the research query has to be answered through the empirical inquiry and that an individual's instincts should not cloud the rational inquiry regardless of the scientific subject that is under investigation (Yin, 2009)

Realism is another philosophy whereby the human mind and reality is deemed autonomous from each other. Scientific strategies are essential to overcome knowledge. It is associated with two approaches, which are critical realism that postulates that the capacity to derive the reality from human experience is inquired because of the personal subjective explanations of the feelings and images (Creswell, 2013).

On the other hand, direct realism states that human cognition is the way the environment is depicted and comprehended. Direct realism does not look for detailed inquiry, but it takes the initial observation as the best epistemological strategy, which means that detailed multi-layered research allowed by direct realism means it is more widespread as an approach (Yin, 2009)

Saunders, et al., (2015) detailed the philosophical state that and individual's knowledge gives the basis for evaluating the detected issue, therefore, establishes knowledge based on direct observation which determines reality which is interpretivism.

In addition, Tsang (2017) also noted that subjectivism is different from interpretivism from positivism. For instance, interpretivism looks at the knowledge and appreciates the direct analysis participation in the process of observation. Positivism believes that it is possible for the analysis to remain detached from the aspects being investigated. Moreover, they believe that the adoption of

different methodological strategies is shaped through original epistemological principles, which are driven through two philosophies that are interpretivism and positivism (Creswell, 2013).

### 3.1.1 Interpretive approach

The interpretive qualitative study approach is the use of interpretive data, which seeks to understand the meanings of the persons or groups as they identify with the social or human issues. In this approach, the researchers interpret the experiences in unique ways based on past social-cultural influences. This study can be categorised as interpretive. The positivist paradigm utilises quantifiable measurements of variables and deducts inferences surrounding the phenomenon from the sample population (Morgan, et al., 2016).

In the positivist approach, the assumption is that the link between humans and social reality is independent. It is concerned with cause and effect, and it is criticised under the intensive systems for its treatment of the organisational reality. In addition, it is also seen as being too deeply rooted in its function and is mostly concerned with the causal analysis instead of getting close to the phenomenon under investigation (Ritchie and Lewis, 2003).

The epistemological orientation depends on the interpretive approaches that believe that knowledge of reality is obtained through social constructs like language, tools, documents and shared meanings. In the interpretive approaches, it is believed that the social phenomenon is understood from the social context where they were constructed and reproduced through various activities. Therefore, it is regarded as the understanding of social action, which must have the social actors who deed their deeds. In addition, it is believed that social reality is because of intentional actions. Interpretive approaches intend to understand the context of the information in the systems as well as the process which the information influences the people (Morgan, et al., 2016).

Ground theory rises inductively from the study and its continuous interaction with the data. Grounded theory is used when the theory is not available to explain the processes. The grounded theory approach was not



deemed suitable to fulfil the aims and objectives of this study under investigation (Flick, 2017).

### 3.1.2 The rationale for using the interpretive approach

The interpretive approach enables the researcher to expand the understanding of the critical organisational as well as social problems related to the adoption of the information and communication technology (ICT) among the business organisations (Creswell, 2013).

This approach operates under beliefs that accessing the reality is possible through social constructions like the language as well as shared meanings. This approach has a philosophical foundation in the hermeneutics and phenomenology. Morgan, et al., (2016), assesses that the aim of the interpretive approach is to understand the context of the intensive systems and the process that influences it.

In addition, an interpretive method gives the researcher a wider scope to address the issues that influence and affects the context. It also asks the questions of why and how a certain technological trajectory is developed (Tsang, 2017).

In terms of qualitative inquiry, the interviewee is a direct participant in the informative collective and analysis process (Yin, 2009). The epistemological underpinning of the Qualitative approach is concerned with adopting naturalistic, comprehensive and phenomenological methods to gain new knowledge from understudied phenomenon (Morgan, et al., 2016).

## 3.2 Research design

In order to answer to the research question and fulfil the aim in regards of a clearer, organised and complete understanding of DLT and the possibility of its implementation, the interpretivist paradigm through qualitative description was utilised; and the data collection was completed through one on one, open-end semi-structured interviews (Creswell, 2013).

The researcher's rationale for utilising the interpretivist approach was due to the fact that this methodology uncovers the meanings of the "lived

experience" which for the purpose of this research study was to gain a greater understanding of the experiences in the utilisation of DLT (Guest, et al., 2012).

The core idea of interpretivism is to work with these subjective meanings that already are there in the social world; (Patel, Salma, 2015), i.e. to acknowledge their existence, to reconstruct them, to allow for a greater understanding of the phenomenon under study (Schwartz –shea, 2011).

### 3.2.1 Target population

The study targeted the cross-border transactions, in regards to Foreign exchange business and the interconnectivity as intermediaries of the financial institutions, in particular, the banking scheme. For this purpose, the inclusion and exclusion criteria were utilised, in order to indicate the most suitable candidates to be included in the target population and sample (Asgar Mahmoudi-Hamidabad, 2012). In view of this, key executives with high relevance and responsibility in regards to decision making in the banking system were invited to participate in this study.

Exclusion criteria consisted of banking personnel in lower hierarchy or positions which did not include executive responsibilities (Ritchie and Lewis, 2003).

Therefore, the study included the key banking executives, GDPR experts, lawyers and information and technology professionals. Inclusion of the necessary stakeholders was deemed imperative to gain a greater understanding of their perceptions of cross-border payments, transactions and the possible utilisation of DLT. It was asserted that these participants could usefully assist in answering the research question from their professional experience in regards to the actual functioning and utilisation of DLT, in creating a greater understanding if it is worthy of implementation (Sok, 2016).

### 3.2.2 Sampling method

The convenience sampling method used executives and highly experienced professionals in the area of international trade finance, GDPR, e-

commerce and electronic trade. Eight (8) participants in total were invited to participate in this research study, with the guidance of the convenience sampling technique (Asgar Mahmoudi-Hamidabad, 2012).

The aforementioned sampling technique was utilised to assist in selecting the most appropriate, participants from the general population who could assist in answering the research question. It was considered that these participants would grant an inside view of their "rich descriptive experiences" in the financial, legal and technological world (Suri, 2011).

### 3.3 Data collection techniques and procedures

The Data was collected using one on one semi-structured open-ended interviews (Lavrakas, 2008). The philosophical assumptions, which guided this study, were derived from the interpretivist paradigm (Fisher, 2007).

#### 3.3.1 Interviews

The study objective was to ascertain participants perspectives of DLT in cross border transactions through open-end and semi-structured interviews. This was deemed imperative to assist in gaining a deeper understanding of the meaning and experiences of the phenomenon under study (Saunders, et al., 2015).

The interview guide was designed to assist the interviewer in capturing the necessary data required to assist in answering the aims and objectives of this research study. Background demographic information was also obtained from participants (Ritchie *et al.*, 2013).

#### 3.3.2 Interview process

The process carried out for inclusion in the one on one interview was conducted firstly through a personal invitation via email, (see appendix A). Following an expression of interest to participate in the research study, a face to face interviews were conducted (Fisher, 2007).

In the introduction stage of the interview, the participants were asked to review the consent form. Anonymity, confidentiality and data protection measures were outlined in the consent form (EU Parliament, 2016).

Participants were asked for their consent to allow the conversation to be recorded. The open-ended, semi-structured questions lasted between 40 to 60 minutes. During the interviews time was allowed for any additional questions. Each participant was asked if he or she would consent to follow up information contact. The interview responses were audio-recorded and transcribed verbatim (Fisher, 2007). The transcribed data was logged in the research journal (see appendix B).

Firstly, the compilation of the interviews and the proper transcription into word sheets (see appendix c) took place. Secondly, there was an analysis of the explicit content of the discourse, focusing on insights and understandings. Thirdly, processes were undertaken to compare and contrast interviews for similarities and differences in content, style, and interpretation as well as experiences, Step four consisted of a thematical analysis of the transcribed data and the most relevant themes uncovered (Mishler, 1990).

### 3.3.3 Research Ethics

Due to the nature of the information shared during the interviews an email as a way of consent form agreement was sent to the participants, in which the positive answer to the email implied consent to participate in the study. The nature of the interview was regarding academic purposes and that all the information expressed between the interviewer and interviewee, was taken care as stipulates the form of conduct of ethics in Griffith College (see appendix a) (Bold, 2019).

### 3.4 Analysis and interpretation of data

The qualitative data were analysed using Cope's (2005) four levels of analysis. Level one was through consideration of data collection and recording process. Level two was Data collection, which was reviewed that consisted of adding notes for clarification. Level three was transcribed as it was conducted without adding or editing anything. (see appendix c). The last level four used narratives that were presented both thematically and chronologically since the narratives gave explanations of the use of data, information and systems based on decision making in the context of the participant (Bold, 2019).

#### 3.4.1 Limitations of the research design

In view of the small sample size, 8 participants were included in this research study; the researcher acknowledges that findings cannot be generalised (Suri, 2011). Moreover, the interpretivist paradigm's subjectivity may pose a further deficiency, with the replicability of the research and the subjectivity of the analysis.

In view of the sensitive nature of this topic, it is asserted that participants may not have fully disclosed their honest viewpoints in view of the fact that face to face interviews was conducted (Saunders, 2009).

## CHAPTER FOUR

### 4. Presentation and Discussion of the Findings

In the previous chapter three a detail explanation of the methodology utilised in the development of the study was discussed, as well as a layered explanation of the procedure applied for the open-end interviews to answer the research question and develop the scope of the study.

Over chapter four the presentation of the findings will be outlined as well as an overview of the conclusions which assist in answering the research question entitled, Is DLT overstating its promise as an effective, innovative technology, or is it a disruptive hype not possible to be fulfilled?

#### Overview

The subsequent chapter presents the analysis of data that gathered relevant information from the interview transcripts. The participants in the interviews provided an extensive and valuable description of their expertise and knowledge in regards to DLT, Banking, e-commerce, cross border transactions as well as a legal inside. The qualitative phenomenological interpretivism method of data analysis used to develop the one on one interviews (Patel, Salma, 2015), exposed three main themes in regards to Distributed Ledger Technology and its feasibility.

The need for a more precise outcome confines the researcher to enclose the findings with the three most important and relevant discoveries, that arise from the research and consequently those most pertinent to the aims and objectives of the study. The main claim within the finding will be in *Italics*; the main findings were catalogued as the following:

- There is no secret sauce in DLT.
- If it ain't broken, why DLT?
- The value of DLT success might be in its accountability.

The above-mentioned findings will be reviewed and analysed within its independent heading. Evidence proving the findings will be discussed, and a conclusion will be drawn out of the main findings.

#### 4.1 There is no secret sauce in DLT

It is stated that Distributed Ledger Technology is a vehicle for many solutions. A panacea for the global financial inclusion problem, as well as its effectiveness in transactions; however; *there appears to be an absence of commercial value in Distributed Ledger Technology for the banking scheme*. In this regard, without the significant value for business Distributed Ledger Technology seems not to be commercially competitive enough to be taking in acquaintance.

Even at its early-stage Distributed Ledger Technology is expected to be effective and likely to be implemented technology in the financial scheme. The first impression that Distributed Ledger Technology has caused in the cross border transactions internal markets and even more so in foreign exchange (FX) Market is that seems appealing and Novellus, making DLT the missing secret sauce that will possibly give the final touch to the already onerous and so-called old fashion banking industry, but again; DLT lacks of the exceptional ingredient worthy of being implemented yet.

##### 4.1.1 Evidence

From the findings, most participants (see appendix c) were positive about Distributed Ledger Technology, presented as a well effective and feasible technology in respect of the cross-border payments, especially in the case of Correspondent Banking Relationships (CBR's) and somehow as a digital storage that could be beneficial for processes such as Know Your Customer (KYC).

Nevertheless, Distributed Ledger Technology (DLT) expressed some challenges, for instance, the task of managing the relationships of the banking customers is the KYC process in the real day to day practice is known to be excessively time consuming and onerous.

To make it familiar, a team of executives (see appendix c) on behalf of his business-related to CBR's prepares customers process, and it is their job to get fresh documentation renewed on an annual basis for the customers. To mention that CBR's are considered of higher risk, than other business plans, on the basis that on the underlying transaction data becomes true when customers who belong to other institutions and not to the owned customers performed and accept the transaction.

Therefore, relying on the due diligence on the remitting bank and beneficiary banks side, as well as relying that the due diligence be adequate in order to make sure that there are no financial security issues, and as part of KYC process there is technology that accordingly to the participants is being already provided by the KYC documentation.

Therefore, KYC own carried documentation seems to be more reliable. For example, a different team of executives in charge of the KYC process expressed (see appendix c) that if there was a proven way for DLT to replace the mechanisms that the financial institutions already have or DLT being more efficient in matters of its cost-effectiveness, then maybe DLT could be considered for adoption.

It has been mentioned (see appendix c) that there is a need in the banking scheme and at e-commerce, in general, to become updated towards the rapid evolution of technology and the needs of customers to quicker, inexpensive and more effective transactions.

DLT seems to proclaim the needs mentioned in the preceding paragraph and not only that but also claims to improve the long social responsibility of economic inclusion among economies and financial institutions across borders. As proclaimed by some of the participants (see appendix c) in certainty, most of the work is being already done in their traditional way.

Therefore, the ultimate objective as any other business expects is in regards of the profits and the stakeholders, more so ever what seems to be left aside is the social responsibility of the banking scheme to the less develop economies.



The competitiveness and standardisation of processes are crucial for the banking industry and until the development or improvement of technological innovation in regards of its commercial value among other competitors to give an example: PayPal, Revolut, Amazon, N26, to mention some, appears not to be the secret sauce.

#### 4.1.2 Discussion

Distributed ledger technology (DLT) is a technological innovation, which streamlines the financial transactions and reduces the costs of transactions. The financial industry assesses the opportunities as well as the challenges presented by the technology. (Sok, 2016)

Distributed Ledger Technology has transformed the way financial institutions perceived transactions and the new entrants. The executives and start-ups can overcome technological issues, regulatory as well as adaptation changes as experienced by using blockchain technology.

DLT appears to be an excellent and perhaps convenient technology for the already tight and consolidated structure of banking. Where the versatility of the design of DLT as some researchers mention that DLT could create such an impact, that may disrupt the consolidated structure of banking.

Furthermore, other researchers outlined in chapter 2 of the literature review the perceived need for technological improvement and the use of these digital tools to create a rapid and effective corridor of transactions.

Nevertheless; despite the pressure in modernization for the banking scheme, the methodology and structure that has been set up for so long, is the one that complies to the regulations, therefore not requiring what appears to be a disruptive technology, that will not generate an input in their commercial value and therefore driving the banking industry to higher levels of profit in regards of their competitors.

In conclusion, despite that, DLT might seem not worthy of implementation in the banking scheme does not mean that perhaps in a foreign exchange (FX) cross border transaction, panorama could be more effective.

Perhaps DLT is not the secret sauce for all the criteria in the financial institutions, nevertheless appears to be a fairly good system within the e-commerce scheme, allowing the new entrants of start-ups. With e-transactions and newly develop business, where there is a wider possibility of an effective, quicker, inexpensive and less onerous method to enable international cross border transactions.

#### 4.2 If it ain't broken why DLT?

The difficulty in altering well establish structures as it is the case of the financial institutions generated a niche market for those start-ups that expanded the gap in market share for the banking industry. In spaces were previously were single managed by the bank, and now same spaces are being captured by new innovative start-ups at the edge of technology usage.

Banking scheme seems to be suffering from a de-facto resilience to transformation, causing a loss in market share. Generating the question that if the established structure in banking has been working good enough so far, if it ain't broken, therefore; why the need for DLT. Oblivious of the fact that the market might be moving forward to new entrances, occasioning a loss of market share.

To understand what structure of banking stands for the matter of this research study, banking structure is the organisational construction that the banking scheme has been using in regards to directions and steps. For example, in the case of the Information Technology department, the usage of Windows XP is complying with all the regulations and security formats that financial institutions require, even though it's an outdated old format of technology.

To modify the entries of the system for new updated technologies such as DLT. For instance, there are many filters of approval that need to be completed. Going back to the example of Windows XP that is used in the ATM machines; in order to adapt the existing system to a newer system, the Information Technology department would have to obtain a proof of work of the new system, it may need as well to include legal, and security check-ups, the entire process for the new update would become extremely onerous. Therefore, why change the old structure if it is working, if it ain't broken, why DLT?

#### 4.2.1 Evidence

During the early stages of the data collection in particular to the request for the open-end interviews (see appendix a) some participants expressed their limitations in regards of traditional way of working within their financial institutions, for this matter the onerosity in process within banking scheme or international cross border transactions, gives an appearance of lack of technological capacity.

Most of the participants agreed that even though it may appear a lack of updated technology, the systems they have been using so far are structured because they fulfilled an extensive checklist of parameters.

DLT presents itself as a technology that is more effective than the traditional usage, in fact, participants with a broad knowledge of DLT expressed how beneficial and the many usages the technology could have in the banking scheme to mention some.

Interestingly, on the other side of opinions poured during the primary data research, the physical adaptation to the new systems such as DLT, in this case, will not take much effort. It nevertheless seems that there is no need to improve a stablished system, for a new one that not only is not capable of competitive advantage that might generate profit, but also has not fulfilled all the requirements employing proof of work, and has no conveyance with the regulations compliance and security requests.

#### 4.2.2 Discussion

Some researchers mention the paradox of adding another hair to the cat, in regards of DLT; expressing that it is already difficult to keep up with a large amount of compliance, rather than adding another issue to the table, that is not going to impact the way profits are perceived.

This information is relevant to analyse the position of how DLT is being proposed to the financial scheme in special at the banking area, that needs to prove that the acceptance of new technology will be significantly disruptive.

Following the specialists in e-transactions, the move or migration from the old banking scheme to the new technological advances like DLT is very simple to manage and re-adaptable.

Some researchers affirm that banks need to dedicate more time to the social responsibility while the business scheme pushes the financial institutions for ruthless competitiveness, forcing small FX trades to take place as a relief for the demanding market of rapidness and time efficiency.

It is usually ending up in a typical economic monopoly for cash transactions. On the other hand, as states, the conceptual framework in the utilisation of Lewin's force field analysis, the need for modernisation is pushing the banks to become more competitive in the domestic and international markets.

Even though, as the paragraph above mentions, there is no need for adaptation of a not proven new technology, the perceived fact is that the banking scheme and the world, in general, need to adapt to the fast movement of technology that implies the utilisation of new systems such as DLT.

There are several new start-ups and companies that have commenced the utilisation of DLT, is the case of some financial institutions in the UK — obviously denoting that this type of businesses has not achieved the level of veracity and genuineness of a traditional bank.

However, it costs the banking system a great loss on their market share. The spaces and transactions traditionally done years ago by banks are now being communal with numerous new companies as an example PayPal, Revolut, among others that are asking to be part of the shares of the banking system.

Even though, that the banking scheme appears not to be needing of implementation of DLT within its established structure, to keep up new start-ups driving the international cross border transactions. As well as the public and market in general that are firmly pushing the industry to look forward and act in matters of effectiveness and rapidness as well as guarantying the transparency and legal compliances, as described in chapter 2 heading 2.4 in the Lewis driving and restraining forces in favour of DLT.

In conclusion, it is perceived that the role of the banking industry is getting cornered to the international sphere in regards of significant transactions and

Foreign exchanges markets, leaving the internal market to a possible opening of other more efficient and competitive business, as thrown in the initial primary data analysis.

#### 4.3 The value of DLT success might be in its accountability

The lack of accountable management in DLT is a cause of concern. Due to the fact that one of the main characteristics of DLT is not required of participation or involvement of an arbitrator, or of a central validator, that causes the transactions dealt in the ledger peer to peer, therefore, strictly direct and faster.

The lack of an arbitrator or central validator for the transactions held in a Distributed Ledger appears to the possible uses of the technology as not feasible, or in a manner susceptible to risk. In an environment where there is no accountable human intervention. Therefore; Is this lack of human interaction that might be causing the deficiency in regards to thrusting DLT for its implementation and standardisation.

##### 4.3.1 Evidence

Scholars have mentioned over the secondary data analysis that the greatest challenges faced within DLT are the end-to-end process even if between the banks. The reference here add-In fact, it appears that the financial intuitions have consolidated everything. The banks itself have its leisure of where the client account is maintained and managed. If this information is not possible to be part of the blockchain, seems that there is no difference in what is possible to be done in regards of private data between banks and what is done in a blockchain. The new GDPR addresses the issue in regards to information owned by different Banks.

Some of the participants in the primary data collection believe that reconciliation between the Ledger of the bank and the blockchain needs to be done in between. What is being done; in fact, is pushing the reconciliation effort one level down, without resolving it. That's the challenge at the moment.

Some of the most relevant discoveries within the primary data analysis throughout the financial institution appear to have a perception of risk in regards of compliance with the data management, how is storage, where is kept as well as the liability of the persons or departments in charge of managing the data.

Perhaps most of the relevant issues mentioned by prominent scholars in the analysis of DLT implementation come from the fact that a technology innovation not capable of being controlled is not suitable for international cross border transactions, being susceptible to possible cybercrime, and mislead to darker uses such as Terrorist financing or money laundering.

Therefore, the main issues with the feasibility to implement DLT relays on the fact that such a liberating technology that involves a peer to peer end, impact the participants responses in the primary data collection, as their perception of a lack of liability and management, in regards of the control and responsibility of transactions done in a ledger.

The majority of the participant's outlined that a lack of a visible or feasible arbitrator makes the DLT technology untrustworthy, which therefore may not be capable of utilisation.

The second difficulty was the way the information was stored since the nodes or participants become involved in the networking of an individual ledger, where they are interconnected with each other: all the information poured into the ledger is permanently stored or not possible to be erased.

Therefore, the characteristic of indefinite storage of information signifies a characteristic of DLT, occasioning a conflict of interest with the European Data protection regulation (GDPR) in its art. 17 the right to be forgotten.

In conclusion, two important arguments to understand within the possibility of DLT implementation is the conflict with the GDPR, As well as the lack of liable human participation within the ledger.

#### 4.3.2 Discussion

DLT being a premature technology that Storage of information, appears to be an underlying issue in regards to the GDPR and the art. 17, the right to be forgotten. Nevertheless, there is a loop with the application of GDPR for DLT regarding the use of smart contracts. If for instance individual X; decides to accept the terms of contract for a subscription to NETFLIX where individual X is meant to give away all its personal information to the company that will provide him/her the service, this individual X is in a tacit way agreed to have his data manipulated and stored, therefore is established as a form of consent.

A node participating in a distributed ledger is also giving its consent to participate in the ledger, as individual X; tacitly it is giving its consent for his/ her data manipulation, and therefore being aware it will remain in the ledger for an indefinite period.

From the analysis of the primary data as mentioned over the point 4.3.1, the main issue once conveying with the regulations is the fact that there is no central arbitrator or validator. For instance, if there were a possibility to utilise human intervention to designate not one single validator but several validators in charge of different ledgers, this would perhaps make the technology feasible enough for its implementation.

#### CONCLUSION

The feasibility of implementing DLT within the financial scheme in general, seems to be depended firstly of the need to make it commercially competitive, secondly, the opportunity to create an adaptable and secure enough environment for its implementation, as well as engaging the banking scheme in an attitude of adaptation, being a key element uniformity.

A third important point is the fact of the possible inclusion of a central validator or an arbitrator to the ledger itself, may be capable of accountability, perhaps there is a possibility of a parallel validator within multiple ledgers as well. Finally, not leaving aside the overall importance that the main pursuit of this type of technological innovations is the obtaining of a freer corridor of international

transactions where the e-commerce and financial institutions could merge in faster and efficient ways of performing cross border transactions.



## CHAPTER FIVE

### 5. Concluding Thoughts on the Contribution of this Research, its Limitations and Suggestions for Further Research

Accordingly, to what was discussed in the preceding chapter four in regards to the Presentation and Discussion of the Findings, three relevant findings were considered under the analysis of primary and secondary data. In pursuit of solving the initial research question and expecting to achieve the aims of the research study presented throughout the proposal.

Within the final chapter five, what will be discussed are the conclusion and outcomes of the research study, over an extensive and rich explanations of the repercussion of the findings in regards of the initial research question, the contribution and limitations of the study, as well as the practice recommendation, to finalize with recommendations for the future.

#### 5.1 Implications of Findings for the Research Questions

As a result of extensive and elaborate research and a detailed analysis of primary and secondary data, several findings resulted from this study. The need for a more precise outcome confines the researcher to enclose the findings with the three most important and relevant discoveries, the implication of the findings for the banking scheme, financial institutions and cross border transaction demands the possible to question if:

Is DLT overstating its promise as an efficient, innovative technology, or is it a disruptive hype not possible to be fulfilled?

The first initial point of analysis and discussion is that there is a need for a clear separation of hype and relevant innovation. The comprehension of hype would be the overstating promise of a situation or in this case, a technology that is just passing and its fashionably in trend. While most of the findings and research pursuit by the research denote the veracity of a relevant innovation such as DLT, that even though it is in its early stages, its prematurity might denote hits of hype,

however, the formal application and development of DLT indicate the contrary. DLT is expected to evolve and modify some of the gaps found within the initial findings and discoveries of the research study as exposed over chapter four.

The second important point to answer from the research question is if DLT's promise of an efficient technological innovation, or on the contrary, its disruptiveness. From the primary data collected, most of the participants (see appendix c) were positive about Distributed Ledger Technology, presented as a well effective and feasible technology.

In some case various participants denoted the impact of the modification in given structures such as the banking scheme, expressing it similarities to any other innovation that does not require major modification in terms of adaptation or transition to already established structures.

Nevertheless, it was also expressed the enormous change and compliances that DLT will require in order to be fully implemented in a day to day banking scheme as an example, the term of disruptiveness comes from the lack of accuracy of data in regards of the compliances and the impossibility to have a liable, and identifiable responsible arbitrator.

As a third and final point, the core of the question is the possibility of DLT being implemented, for the researcher after numerous and extensive analysis the question of its implementations lays in the practicality of its accountability as mention in point 4.3 of chapter four.

In conclusion, DLT is possible to implement in a panorama where unanimity and consolidation, are established as one single objective and where technology meets the feasible responsibility, technical control and liability.

## 5.2 Contributions and Limitations of the Research

These research findings have contributed to adding knowledge that was previously deficient in the literature. It improved the knowledge within technical areas which will assist in the development of new technologies.

Further possible application of DLT maybe is considered as an important tool for the improvement of CBR's in regards to economic inclusion and upgrading the international cross border transaction.

### 5.3 Recommendations for Practice

It is recommended that DLT is better utilised within the banking industry, for example smart contracts and trade Finance in bond issuing, as well as foreign exchange (FX). Therefore a recommendation for practice is the utilization of an arbitrator that may fill the gap of liability within the ledger, even though there is a drastically change for what DLT stands for, the possibility of adding an arbitrator to the Artificial intelligent functions might provide DLT a feasible a serious up bring in the world of e-commerce and finance.

### 5.4 Recommendations for Future Research

An additional recommendation for the future research lays in the analysis of the utilisation of smart contracts and how this feature could improve and enhance the e-commerce industry as well as the financial institutions. Delimitation and consolidation are key ingredients for a feasible and implementable innovation, whether it is technological or not.

In future research, the analysis of how the technology will adapt to the transitional evolution of laws and regulations is vital to understand the importance of the experience and phenomenological analysis of the key participants in societal environment.

### 5.5 Final Conclusion and Reflections

Despite the fact that the potential of the distributed ledger technology literature on its influence is still fragmented, there is weak imperial insights as well as limited theoretical explanations.

The financial industry management does not have the guidance on how to plan as well as prepare for the effects of blockchain technology, DLT on the financial transactions has suffered from a resilience due to the fact of the missed usage of earlier technologies such as blockchain, bitcoin, among other.

The perception of new start-up innovations generates a snowball effect where the day to day transactions becomes onerous and overwhelming to the stake holders and society in general.

There is a need for the adoption of new developments. History and experience have shown us that the fast way is not always the most effective in the long term; the world is constantly trying to reach and interconnect among individuals. Some of the steps utilised for these connections resulted in devastating economic failures.

It is important to acknowledge that the healthy flow of international and domestic transactions improves the economy and helps in the development of low-income economies. It is concluded that the responsibility for social and economic inclusion should take into account more than personal profits in the financial sector.

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## Appendices

### Appendix A – Covering letter to interview

Dear Ms/ Mr,

I am writing to request your cooperation with an exploratory study I am undertaking as part of my Masters in Science (MSc) in International Business and law at Griffith College Dublin. I am conducting research on Distributed Ledger Technology and its implications in international cross border transactions.

The title of my research question: Is DLT overstating its promise as an efficient, innovative technology, or is it a disruptive hype not possible to be fulfilled? The objective of my research is to explore the reality and experience related to international transactions and the utilisation of the new technology in banking and its cross border transactions, as well as the implications and challenges of it. I want to interview you concerning this issue at a location or via skype at your convenience. An interview should take approximately 30 minutes to an hour.

The interviews are strictly for the purposes of the study and the contents of the interview or any information revealed during the interview will be treated in strictest confidence. Also, the use of the information obtained in the interview will be such that your company or any of the persons interviewed will not be individually identifiable.

If you have any questions about the interview, or about being in this study, you may contact me at alevilarodo@gmail.com or by mobile (+353)833066626. The Graduate Business School at Griffith College Dublin has approved my project and can also answer any questions you might have about privacy. In relation to this, you can contact Aine Mc Manus at aine.mcmanus@griffith.ie or 01 4163377.

Yours faithfully,  
Alejandra Vila Rodo



**Semi-structured, in-depth, open-end Interviews Questions**

Masters in Science (MSc) in International Business and law  
Griffith College  
Dublin, Ireland 2019  
Conducted by: Alejandra Vila

1. Introduction to the dissertation topic

Technology has rapidly become a global phenomenon, and many companies have started adopting internet transfers to reduce the cost of transactions by the traditional methods of payment.

Distributed ledger technology (DLT) is a digital innovation, in the campus of E-commerce and cross border transactions; which streamlines the financial transactions and reduces the costs of the various transactions that are being held across the world. The financial industry assesses the opportunities as well as the challenges presented by DLT technology.

It has transformed the financial institutions for new entrants. The executives and start-ups can overcome technological issues, regulatory as well as adaptation changes using block-chain technology and DLT. Despite the fact that the potential of the distributed ledger technology literature on its influence is still fragmented. The financial industry management does not have the guidance on how to plan as well as prepare for the effects of block-chain technology and DLT on the financial transactions in the future.

It is apparent that Distributed Ledger Technology has a significant change in the processes, that are inefficient, in regards to costs, rapidness and security

2. The research will be designed to answer the following research question:

Is DLT overstating its promise as an efficient, innovative technology, or is it a disruptive hype not possible to be fulfilled?

### 3. Background and Issues

Distributed ledger technology is a database, which is distributed on various nodes (participants), which participate in the network by replicating as well as saving a copy to the ledger (computer file). In the DLT, there is no single authority command, and every node that proceeds to the storage works independently. The major principle behind DLT is through voting and every update on every node vote to make sure that the majority agrees with the conclusions arrived at. The consensus is an algorithm which, when resolved, it automatically updates the database on the wall nodes that receive the copy.

It has led to individuals and natural citizens to get involved in digital transactions like bitcoin and other services, enabling them to create a profitable business, without the need of banks.

On the other side states that its implementation will ensure world-wide economic inclusion, reducing the risk in money laundering, and the finance of terrorism. It is proposing a new era of banking experts to deal with the CBR'S Correspondent Banking Relationships withdrawal phenomenon.

Besides being a shockingly new technology, it's already a premature one and deals with legal implications such as GDPR. General Data Protection Regulation, as well as traceability and KYC, Know Your Customer compliance.

## **QUESTIONS.**

Preamble:

Since the financial crisis of 2007–2008, financial institutions suffered a shocking wake up call, this crisis was a “game-changer” and involved major restructuration in the way of conducting business, one of them was becoming extra cautious in regards of where and to who do international cross border transitions with.

DLT or Distributed Ledger Technology is an innovative Technology; as Blockchain at the moment. That pretends to generate a new banking era, avoiding intermediaries, validators, avoiding expenses of human intervention, capable of directing transactions P2P (Peer to peer), being capable of performing transactions in real-time and therefore the possible “new update” to CBR, compared to the traditional method of how the relationships are being conducted so far.

1. How feasible is it in your area of expertise to rely on this kind of technological innovation?
2. In your personal opinion, in the case of a possible implementation of DLT in the banking scheme, how beneficial, or disruptive could it be?
3. What is your perception of the future for financial institutions and their part in the new evolution of technologies for banking and cross border transactions?

Thank you very much for taking part in the interview. I will compile and analyse all of the data anonymously and confidentially. If any more topics arose which might justify a follow-up interview, I would like to connect with you to organise for a short phone call.

Thank you,  
Alejandra Vila

## Appendix C – Sample completed interview transcript

### **Interview \*EXECUTIVE 3\***

**Date:** 24th July 2019, from 11:00 am to 11:37 am (37.46 min)

(personal presentation. / Introduction to the topic)

**Interviewer Alejandra:** Good morning I'm sorry I was having trouble getting through

**Interviewee \*EXECUTIVE 3\*:** no problem at all it's always good to see the opinions of the younger people and how they see the world as things are moving faster than more of the Legacy generation here.

However, it's always important to understand that not everything that is the fashion nowadays becomes a reality, nowadays which is critical for the organisation and also for young people looking for a role in The Business later on and how to drive things forward. What is that you are studying?

**Interviewer Alejandra:** yes sir, Of course the first of all I would like to tell you that this morning and I will start recording the conversation if that's ok with you and also to remind you, then all the information and all the comments and perceptions and opinions poured into this interview will be taking care, of all the privacy matters and anonymity as my study and research will continue to do in accordance to the Ethical and guideline of Griffith college all data protection measures are taking into an acquaintance.

**Interviewee \*EXECUTIVE 3\*:** (1:56) That's fine, but please take into consideration that whatever I say hey is my personal opinion it's not the official statement on behalf of the bank.

**Interviewer Alejandra:** that's already on the record so as you asked me a few minutes ago my name is Alejandra I am from Bolivia South America and at the moment I am doing a master's degree in level 9 for Griffith College in Dublin Ireland. For which I am developing at thesis focus on how are the new technologies, in particular, DLT and blockchain technology is affecting and various point of views, of businesses and specifically on the bank on investors on the e-commerce, e-finance. Part of my investigation was how technology was rapidly becoming such a big phenomenon in many companies and more

private investors of well started using this technology appears to be very innovative and also a very promising for me areas specific technology. I'm going to talk to you today is about DLT this is a digital innovation, that it's very promising as I will investigate one of the things that DLT promotes, is that the various possibilities, promising being faster and cheaper is also that he may be able to help some issues. For example, the CBR is correspondent banking relationships. Promoting a healthy economy that it's going to be peer to peer and also stating that is going to help as a way of storage for example in the case of KYC or know your costumer this technology is already very premature and it's early stage... my main question is in your personal opinion as someone who's dealing already in the banking scheme, and it's a bank working employee, as a professional how feasible would you think this kind of technology is or reliable is in your working area?

**Interviewee \*EXECUTIVE 3\*:** (4:55) Yeah so I'm working in the payments space and cash management, were we have corporate cash management and institutional cash management in the Global transaction bank, and a transaction bank has four different pillars in cash management we have corporate cash management institutional is the home of correspondent banking we also have a trade Finance function, and we have a security services function which is custody business and we have a tax function more or less kind of global markets where we take on administration work for private companies for some organisations we need a custodian to manage program of different functions and cash.

(5:45) It's interesting because a lot of people they claim that at this could revolutionise, the way we are doing cash management and the way we are doing correspondent banking. But in reality when banks and also Consortium like IBM or the other tech players do a proof of concept the result was always pretty discouraging and there are various reasons, to that one, first of all, I think it's important to look at the end to end process from the client to client because that's what correspondent banking is all about.

(6 minutes 25) For example, if you want to pay me from Bolivia to me in Germany, for instance, you need a bank in Bolivia to go to, and this bank in Bolivia needs to find a bank in Germany and a German bank needs to find my account and pay me. So that's the end-to-end chain you're talking about clearing at the moment where the challenge is banks have an account with each other they maintain mirror accounts to reflect the booking the other bank is doing, and that's it's the reconciliation issue do, and of course, you have the time lag. Sometimes you make wrong bookings, and you have gaps and open positions in the reconciliation and that less is engaging a whole industry trying to reconcile these books across the globe during the day.

And that is the thing that blockchain could address actually that you could put everything in one place and you don't need to reconcile because you only have one truth in one place.

(7.30) This one I get the problem is if you think about the end-to-end process even if between the banks you have consolidated everything then the bank itself has its leisure of where the client account is maintained, and if this is not part of the blockchain. What you can do because of private data and own by different Banks then you have to do a reconciliation between the Ledger of the bank and the blockchain in between so what you are doing you push the reconciliation effort one level down but you don't resolve it.

(8:5) And that's the challenge at the moment here in the cash area of correspondent banking and why certain things do not progress as they were promised to. So, they are better to use cases out in the industry, for instance, smart contracts and security and also in trade Finance, where if you do a bond issuing you need to run the book and whoever signed off parts of the Bond immediately registered in one place. So, we don't have to reconcile all the different registers across the Bond.

There are use cases which are valuable today I have read the payments space is a bit premature, and the technology still needs to prove that it provides end-to-end value and not only optimise the value chain and pushes it to a different area.

(8: 45) In summary, you have sent me there are some strong statements made that will streamline the financial industry, and so on although I'm not too sure we can already make the statement that this will happen. Maybe it is not the right use case for the problem may be there different areas and how this could be addressed.

The other challenge I am seeing for correspondent banking is it network industry and absolutely what is key is scale so what is important for us. is if we are dealing with the 60, 70, 80 corresponding banks across the globe and different currencies we have to have the same process for all banks. Because otherwise, if you have different processes, it's complex to monitor and manage people who are doing the operations, they need to be able to do it for say 20, 30, 40 Banks. Alike rather than be experts in two or three Banks and they can't take overwork in another area because the bank works differently so for us to have one holistic solution which works across the globe.

At the moment the Swift network which is currently the plan is they will move to ISO 20, 22 as of next year starting of next year or 2021, will be the first major migration so if you want to introduce blockchain technology, and if this only covers a Small Part of the correspondent banking network. At the moment you have to run dual functions, one for the DLT technology the other one for the traditional Legacy Swift technology, and that would immediately drive up the cost at the moment.

(11:00) So that's another aspect that needs to be considered if it doesn't entirely revolutionise the industry and is it just an alternative to a certain flow then it would increase complexity and the cost and not help in reducing it.

And the third element which immediately comes to mind is the data protection, which is happening right now so 25 years ago, there was a huge tendency to say we will become global. So local or regional efforts will go away we will become a global world open t everyone and whoever enters from a could be Bolivian could do business in Germany without any problems because there is a new technology, and you can use it. Before you had to jump on a plane trip for 12 hours can you come to a country which is completely different and foreign to you and you don't know.

Now you log in to the internet immediately you come to a web page which you are very familiar with and so on.

(12:7) So that was the Vision what were seeing right now is driven by the financial industry are sorry the financial crisis which we went through 2008 is that countries have become much more protective. Because they want to make sure that their economy is not hampered by foreign Banks operating in their country and they not knowing what these banks are doing because they are regulated by another regulator and a different country and not by the country, they operate in.

This led to a situation for more and more countries now that they oblige data to be held locally and local systems rather than in global systems so if you think about out the benefits described of DLT technology and openness, where everybody has access to all the information at the same time however if you no get all those isolated data protection, from countries like Switzerland like Russia like Indonesia and there are many examples, like turkey is the most recent one India is working on that one Pakistan. Then the question is if you can't share the data openly outside the Country if you have to have them on a local system in that country.

(13:33) If DLT is offering a lot of opportunity in an environment which becomes more and more secure and different pockets.

So, all this needs to be a theme in context, so it's not only that the technology itself that needs to be looked at but also the regulatory environment we operate in the operational aspects of such a new technology and also the adoption rate across different banks in the industry.

(14:00) This make sense?

**Interviewer Alejandra:** Yeah totally I totally and you mention a few points that are very important. Indeed, we can say that not all suits not once it fits everybody so definitely well as negative side out of this and when is the GDPR and Article 17, that tells us that at data is going to be there forever not being possible to erase. In previous interviews and searches that I've done as well you don't shows that it is definitely possible to probably change the Aspect or manipulated the kind of



information that is being held by the ledger and this could be done by just putting in a sort of like anything as an example nicknames to the persons that are there that I could be traced but not expose the entire and file of the person that it's actually doing the business but there's also another important issue and I put it as an example and I would like to know your point of view in regards of this place in an ideal place pretending that this technology will be standardized global transaction as you mention shared by everybody on an agreement and possibly this technology will be implemented an example to all the banks in all the areas and socialized in all the areas do you think that is actually possible that it could be beneficial like in some way is there anything beneficial about it or is just going to be disrupted as an example in the case in the case sorry of Banks specifically they have a very structure Scheme, how they are doing at their online banking, etc... so how disruptive this could be you trying to change in a case that it's going to be standardised as an extreme example.

**Interviewee \*EXECUTIVE 3\*:** (16:44) It could be the question is how do you introduce it and that's the key thing at the moment so especially in banking at the moment is going through a massive change so if you look at all the major Industries like manufacturing textile Industries etc... they are all going to an area where they have to dramatically change because the world was changing and they're not done the same way that they used to be to be done.

So, what we are seeing is right now, for example in the car industry is a discussion around the diesel the fuel engines versus electronic vehicles with the up and downsize and people coming back...

The electricity used is also not produced cleanly so that you rather move the dirt from one place, for example, the engine in the car to where the electricity is produced which is then used by the electronic car but there are discussions going on in these areas, and we have similar discussions in the banking industry at the moment so we used to be in the world where we more or less could dictate the margin though if the costs where increased you just increase the prices.

(18:18) We used to be in a situation where to get more or less policed status where the banks we're not talking to each other but owning the entire economy they more or less could push the margins are the prices up if the costs went up and they could still have healthy margins because of no competition only banks

could do cross-border transactions there is no transparency without the internet who would know are you transfer US Dollars from Bolivia how to Germany you really need to have an expert and these experts were Banks.

(18:57) This has dramatically changing now because through the internet there is full transparency and how those transfers work you'll find hundreds of pages explaining how corresponding banks work and banks who are doing these roles for clearing houses you'll find all the information on the internet there for clients are much more educated and are therefore not willing to accept any margin any deduct anymore so also I understand that what it takes roughly what your cost is I don't need to pay a lot of money. This drive are margins down, and our ability to push the prices up and healthy margins have disappeared, and now it has become a cost play the client Drive the margin down so we have to lower costs to have still a margin where we can feed ourselves off.

(19:57) In parallel to what's happening, what do you mentioned is the technical disruption that we have more players right now like the fintech coming up with new technology it does not have such a heavy infrastructure like banks have built up over several years in this case.

So they can operate an environment much more cheaply than we can so in certain pockets they are ready or competitive our strong play here is we have the reach which we not only can do certain transactions we can do a lot of transactions in different places, and we can also cross and two other products for the client which the fintech can't do.

The other element which we see the third what was seeing at the moment is that everybody tries to Leverage the technology play to grab new business if you look at MasterCard and visa we know learned they have fantastic infrastructure for card clearing across the globe and then ask themselves right now why should I limit myself to card clearing why shouldn't I clear payments as well because the infrastructure is reusable so like we try to with open banking and certain deals we have now in place to replace certain credit card usage, so you don't need credit cards any more you can use instant payments in an open banking environment therefore you can deal with payments similar with things before which credit card companies enter into our space and try to grab payment

volume because we can clear this much cheaper we have the infrastructure already in place, and we don't have to rely on a heavy banking structure so what I want to say to that one is a lot of movements are happening in all different areas in the banking industry at the moment, and the banks are as a key player at the moment and really need to figure out where do you want to invest and where they want to be tomorrow and DLT is just a new technology at the moment and doesn't provide commercial value yet it's not really regarded as a first priority because the bank of so much under pressure themselves against the new entrance in the market for example if you look at the Alibaba pay and all those wallets popping up are competitors to the banking sector and certain areas, so that's the piece that becomes a priority the DLT technology at the moment wouldn't really give us a competitive edge which wouldn't bring us any benefit compared to any alternative which we need to do at the moment. (22:40)

**Interviewer Alejandra:** Yes you mentioned something very important in regards of the future there so many things that is really talked about like probably the possibility of a branchless bank and as you said you know like people can just do everything through their phones as well as many disadvantages or all they knew advances that make everything faster quicker but also implies that we're losing when we call the touch as you said the one with the person you're doing we are in that something and A.I. would never be able to compete in your perspective as a professional and what do you think is the future of all the financial institutions in the new evolution of technologies for banking and for all these cross-border transactions? (23:48)

**Interviewee \*EXECUTIVE 3\*:** Well that's an interesting question actually I think cross border payments will always be there you have to have a way to settle things across the globe because we have a global industry the companies like Daimler, Siemens, they buy material all over the world you have commodity Traders the global economy simply has to exchange money because it's money against goods are not good against goods, but it's money against goods so it will always be there... so the question is how will it be handled in future from a technology point of view and who will handle it and that for me is also driven by the fact who add value to the client overall if you look at companies they have changed quite

a lot in the past you have people who were just in charge of financing for instance of loans you had people in charge of payments you have people in charge of doing the reconciliation you had people in charge of doing the risk management all of this has collapsed, into holistic functions what is handed all over the place and they are products already like supplier chain finance are you combined payments with financing with trade financing and so on so for me it's also the attractiveness of a bank that you can provide Solutions and other areas and not only in payments which makes a client still a client for the bank in future as they wouldn't just look at a single function like you can do my payments cheapest you can combine it with who can manage my risk on top who can provide working capital Solutions who has access for my excess liquidity and so on and if you go to your pure fintech they can't answer do all that because they don't have a banking licence they can't hold an account to deposit and so on so for me it's more of a question what will be the buying behaviour and the future of companies and other banks and what do you need to do as a bank to be attractive in the future, and I think, but we have a very good starting position because of that we can do a lot of cross selling but we have to learn our lessons and we really need to focus on the client as a client as at the moment we are too much organised into our own PNL ( profit and loss) screen which is cash we have a PNL screen which is trade Finance sometimes the trade finance person would not feature a cash discussion because they, not my Revenue. This is something we need to overcome and look more holistically on providing Solutions to the client end-to-end rather than looking into our structure that's what we need to do, but I think we have a very good starting position to get this addressed. (26:59)

**Interviewer Alejandra:** Thank you so much for all your time as a final question what is your recommendations or maybe points of you in regards to the topic or my research that you would like to mention or advise me on as well as you previously mentioned to me like I can be redirected to another area to someone else that may enlighten more my research. (27:30)

**Interviewee \*EXECUTIVE 3\*:** What we're doing is a bank first of all of course is following we are members in certain consortiums we are also very well

connected in the industry we have people you can speak through for those topics that are the important thing at the moment we need to understand when is the right moment in time to make the decision, what's going on and what it means for us what it means for the industry to find the right moment in time to take the decision ok now it has a good point to get engaged and really do something here because nice getting traction.

But at the moment are feeling is it's an interesting thing it has potential but I don't think as an industry we have identified the right way of unlocking the potential. Others are more proactively driving this, and of course if you look at the fintech they are heavily promoting this as the future of banking and at the banks are old fashioned, but I can't see that happening very fast I may be wrong but I personally don't see this happening very fast also because of what I mention in there so many other things need to be addressed in the industry I'm looking head the Iso 20 or 22 migration which will happen on a global scale will drag on the resources of the banking industry, and we don't have unlimited resources available. (29: 9)

What I will do is put me in touch with the colleague of mine call Andreas. Andreas is working on the correspondent banking space and his role among others is to also follow up looking into new Technologies and is explicitly looking into the topic of DLT and problems in the industry he also was engaged in a study which was led by Swift we're a couple of Banks came together and explored a couple of transactions in a DLT environment which was provided by Swift and some banks exchanging information they eventually evaluated this proof of concept and came back with a conclusion there was a white paper published and he was part of it so he is certainly can share this with you so you can get more insight into the technology and how it's really looked at from a banking perspective and how Banks are trying to drive this topic forward for themselves and what it means to them at the moment. (30:21)

For me anymore overarching function I think I will always look at the end to end overall process Banks are there to earn money we are an organisation we have shareholders so shareholders expect us to earn money and pay dividends so we are a commercial company so at the end of the day I need to find how we can earn more and more money so whatever we're discussing here are the new

technologies as I mentioned if there are operational Burden data protection burdens would eventually drive up the cost even the very best technology from a technology point of view would not be something we are heavily jumping on if eventually, it would not help us to commercialise it. (31: 17)

This aspect is important, and sometimes I find these studies a little bit biased as they look at the technical aspects but not all the constraints around it would you have to look at if you want to use it.

One of the other things we haven't discussed so far is one of the strengths of DLT or blockchain technology which is for instance used in Bitcoin is basically you don't have to create structures anymore you have an open community, the access right and the majority vote actually tell you if it is true or not and I said bitcoin and Bitcoin mining and all that stuff works... ok if you do Bitcoin mining I'd say you look at the whole thing for an operational perspective Bitcoin mining today is already very expensive it takes a long, long time a lot of capacity until you get something mind which means you have to prove a couple of transactions.

That more or less drove the entire mining industry the China because electricity is cheap there so if you look up at the banking community the correspondent banking network open up social network and the majority of everyone who is on it but eventually say a transaction is correct and executed I think that is something that doesn't work in the banking industry you have to have a closed user group and you have to have certain rights of transactions with somebody needs to monitor based on a very open and very new and flexible technology you would need to introduce a framework which controls who has the saying on certain transactions but again it needs a kind of governance function which can Grant the actions on so what I want to say with that one is step away from just looking at technology on its own on and try to bringing into a context like banking for instance to assess the overall value. (33: 47)

**Interviewer Alejandra:** thank you very much for your time

## Appendix D – Ethical Approval Memorandum



### Griffith College Ethical Approval Memorandum

**To:** Michael Nicell

**From:** Griffith College Ethics Committee

**Date:** 21/08/2019

**Learner:** Alejandra Vila

**Dissertation Title:** AN EXPLORATORY ANALYSIS OVER DLT IN BANKING AND CROSS BORDER TRANSACTIONS

The Committee has reviewed your proposal and would like to make the following comments:

- Griffith College Ethics Committee (GCEC) has approved this study. The committee wishes you every success with your research.

OR

- Griffith College Ethics Committee (GCEC) has made the following recommendations for this study:

Note that this approval/ suggestions for ethical improvement apply only to the procedures outlined in your submission.

Any departure from these must be discussed with the Supervisor and may require additional ethical approval.